FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

August 16 to August 29, 2015 (weeks 33 and 34)

Overall Summary

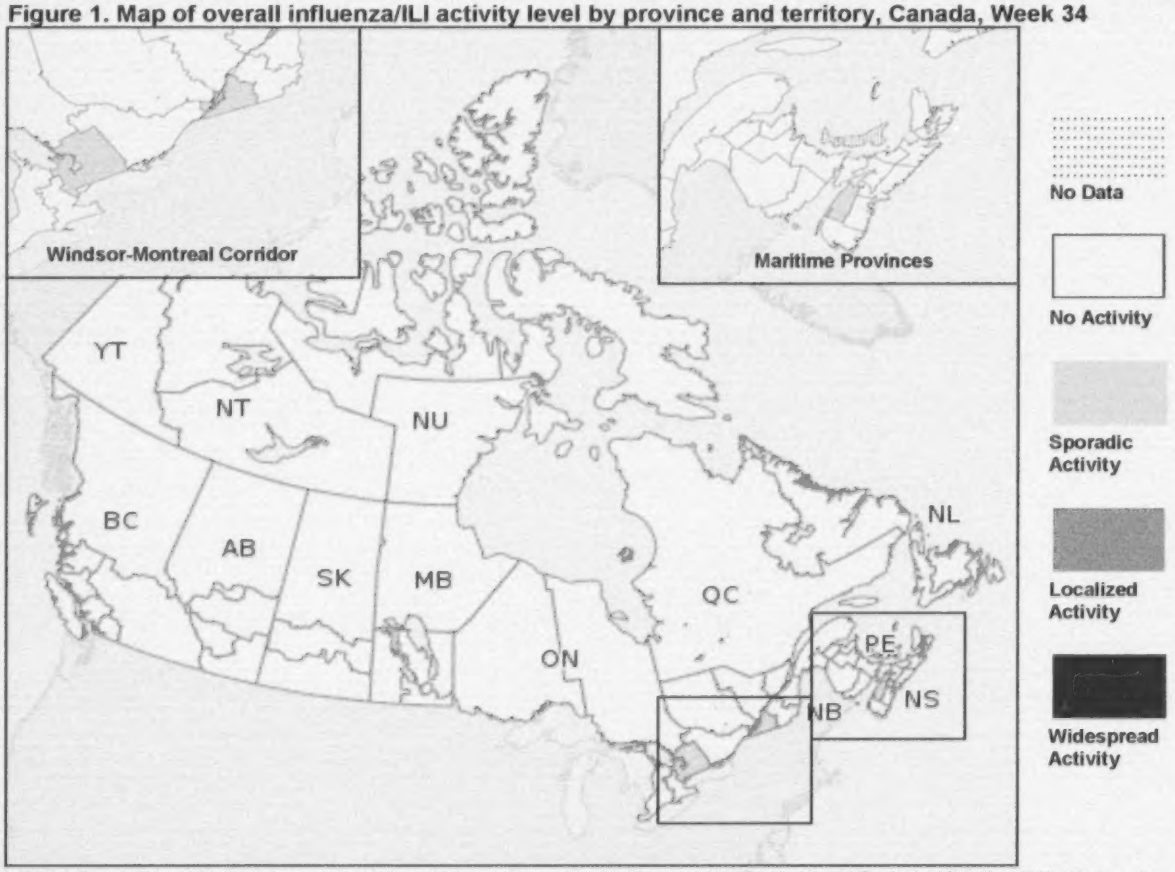
- Overall, there is little to no influenza activity in Canada; however, in week 34, there were low levels of influenza activity reported in regions of Ontario, Quebec and Nova Scotia.
- Rhinovirus was the most commonly detected respiratory virus in weeks 33 and 34
- As of week 34, 8,021 hospitalizations and 606 deaths have been reported from participating regions, which is more than were reported last year at this time (5,457 hospitalizations and 344 deaths).
- This is the last FluWatch report of the 2014-15 season.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2015-16 influenza season? Contact us at FluWatch@phac-aspc.gc.ca

Influenza/ILI Activity (geographic spread)

In week 34, sporadic influenza activity was reported ON, QC and NS. Overall, there is low influenza/ILI activity in Canada.

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 34

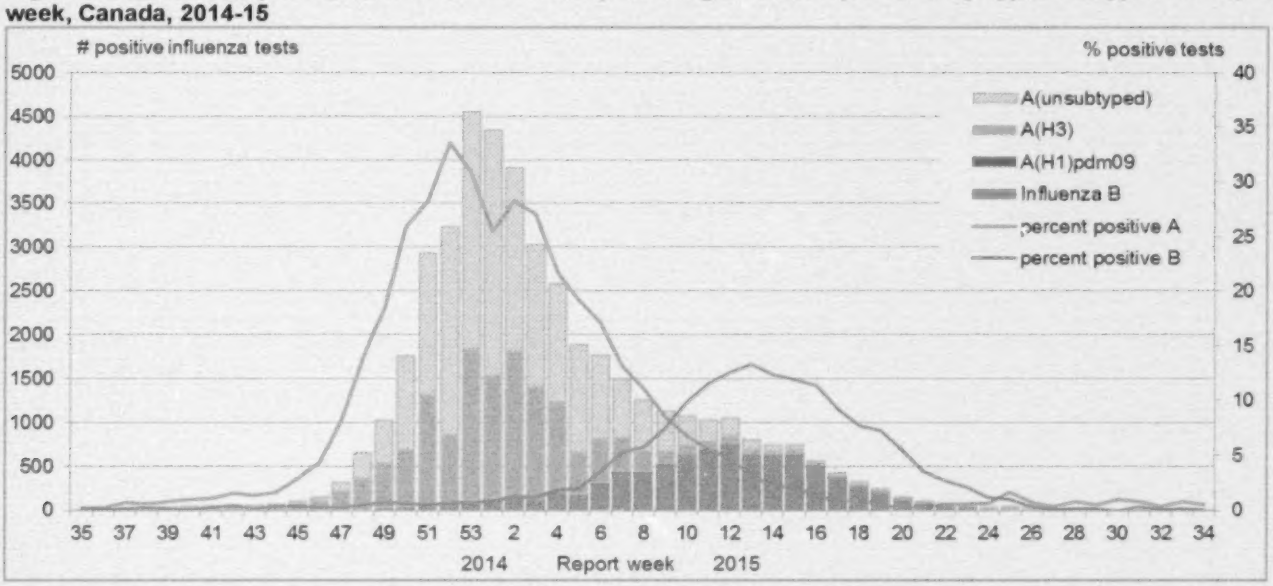


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available on the FluWatch website.

Influenza and Other Respiratory Virus Detections

Influenza detections remain at inter-seasonal levels. A few jurisdictions reported low numbers of influenza detections in week 34 (Table 1). In the summer months (weeks 27 to 34), 82 influenza detections were reported and the majority (65%) were influenza A(H3N2). For the 2014-15 season, detailed information on age and type/subtype has been received for 37,487 cases (Table 2). Adults ≥65 years of age have predominantly been affected by influenza A, accounting for 62% of influenza A detections.

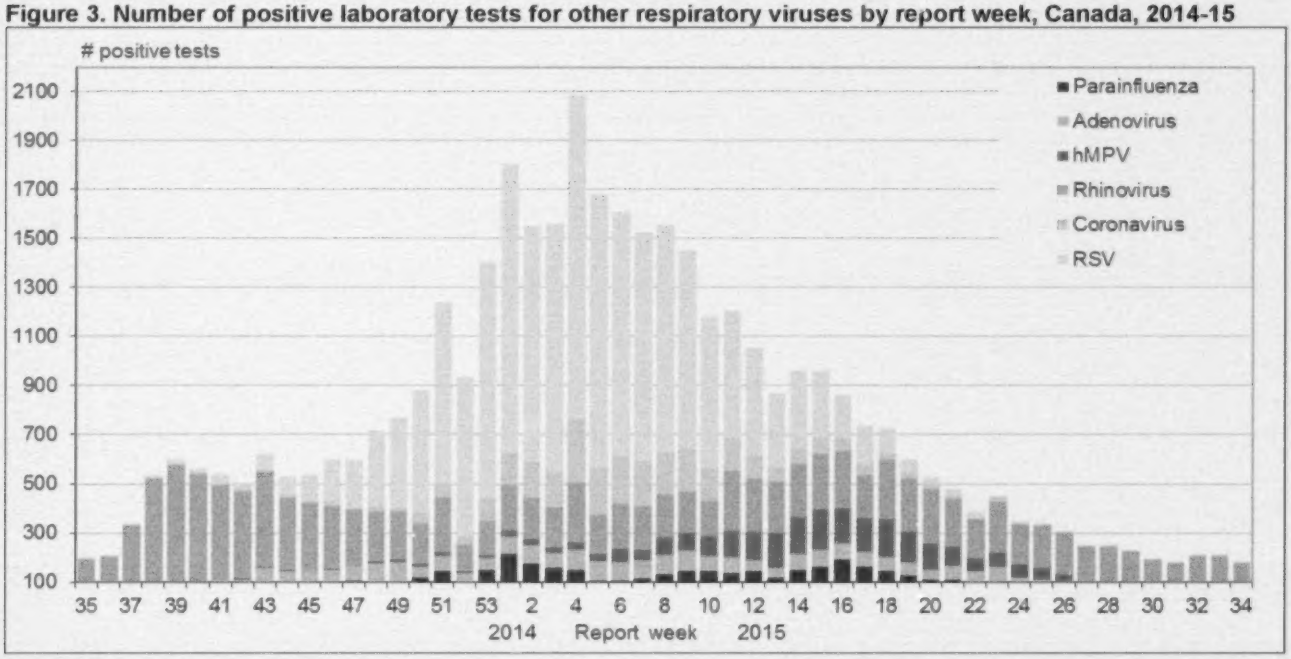
Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2014-15



Similar to influenza, detections for all other respiratory viruses remain at inter-seasonal levels (Figure 3). In weeks 33 and 34, rhinovirus was the predominant virus among other respiratory viruses.

For more details, see the weekly Respiratory Virus Detections in Canada Report.

Figure 3. Number of positive laboratory tests for other respiratory viruses by report week, Canada, 2014-15



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2014-15

Reporting provinces[1]	Weekly (August 16 to August 29, 2015)					Cumulative (August 24, 2014 to August 29, 2015)				
	Influenza A				B	Influenza A				B
	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total
BC	0	0	0	0	0	3571	29	2667	875	509
AB	0	0	0	0	0	3719	14	3550	155	1007
SK	0	0	0	0	0	1320	0	841	479	412
MB	2	0	1	1	0	1129	1	394	734	228
ON	1	0	1	0	0	11220	53	4756	6411	1555
QC	4	0	0	4	0	11468	4	422	11042	3915
NB	0	0	0	0	0	1196	0	193	1003	536
NS	0	0	0	0	1	511	1	123	387	264
PE	0	0	0	0	0	131	1	128	2	109
NL	0	0	0	0	0	629	0	123	506	81
Canada	**7**	**0**	**2**	**5**	**1**	**34894**	**103**	**13197**	**21594**	**8616**
Percentage[2]	87.5%	0.0%	28.6%	71.4%	12.5%	80.2%	0.3%	37.8%	61.9%	19.8%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2014-15

Age groups (years)	Weekly (August 16 to August 29, 2015)					Cumulative (August 24, 2014 to August 29, 2015)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	0	0	0	0	0	2097	24	811	1262	570	2667	7.1%
5-19	0	0	0	0	0	1786	6	959	821	809	2595	6.9%
20-44	2	0	0	2	1	3468	18	1686	1764	1155	4623	12.3%
45-64	2	0	1	1	0	3901	23	1678	2200	1845	5746	15.3%
65+	0	0	0	0	0	18794	13	7325	11456	2935	21729	58.0%
Unknown	0	0	0	0	0	120	0	101	19	7	127	0.3%
Total	4	0	1	3	1	30166	84	12560	17522	7321	37487	100.0%
Percentage[2]	80.0%	0.0%	25.0%	75.0%	20.0%	80.5%	0.3%	41.6%	58.1%	19.5%		

[1] Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data includes updates to previous weeks.
[2] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3] Table 2 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Antiviral Resistance

During the 2014-2015 influenza season, the NML has tested 1,937 influenza viruses for resistance to oseltamivir and 1,935 influenza viruses for resistance to zanamivir. All viruses were sensitive to zanamivir and one influenza A(H3N2) virus was resistant to oseltamivir. A total of 1,502 influenza A viruses (99.9%) were resistant to amantadine (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2014-15

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	986	1	984	0	1477	1476 (99.9%)
A (H1N1)	25	0	25	0	26	26 (100%)
B	926	0	926	0	NA[1]	NA[1]
TOTAL	1937	1	1935	0	1503	1502

[1]NA: Not Applicable

Influenza Strain Characterizations

During the 2014-2015 influenza season, the National Microbiology Laboratory (NML) has characterized 1,171 influenza viruses [221 A(H3N2), 24 A(H1N1) and 926 influenza B].

Influenza A (H3N2): When tested by hemagglutination inhibition (HI) assay (n=221), one virus was antigenically similar to A/Texas/50/2012, five showed reduced titers to A/Texas/50/2012 and 215 were antigenically similar to A/Switzerland/9715293/2013. Additionally, 1,224 A(H3N2) viruses were unable to be tested by HI assay; however, sequence analysis showed that 1,222 belonged to a genetic group that typically shows reduced titers to A/Texas/50/2012. **Influenza A(H1N1):** 24 A(H1N1) viruses characterized were antigenically similar to A/California/7/2009. **Influenza B:** Of the 926 influenza B viruses characterized, 815 viruses were antigenically similar to B/Massachusetts/2/2012, three viruses showed reduced titers against B/Massachusetts/2/2012, and 108 were B/Brisbane/60/2008-like (Figure 4).

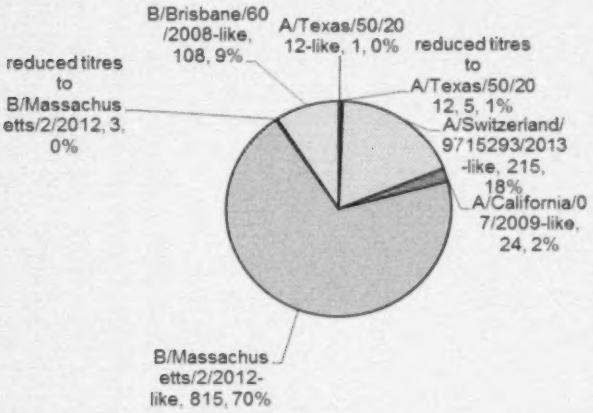


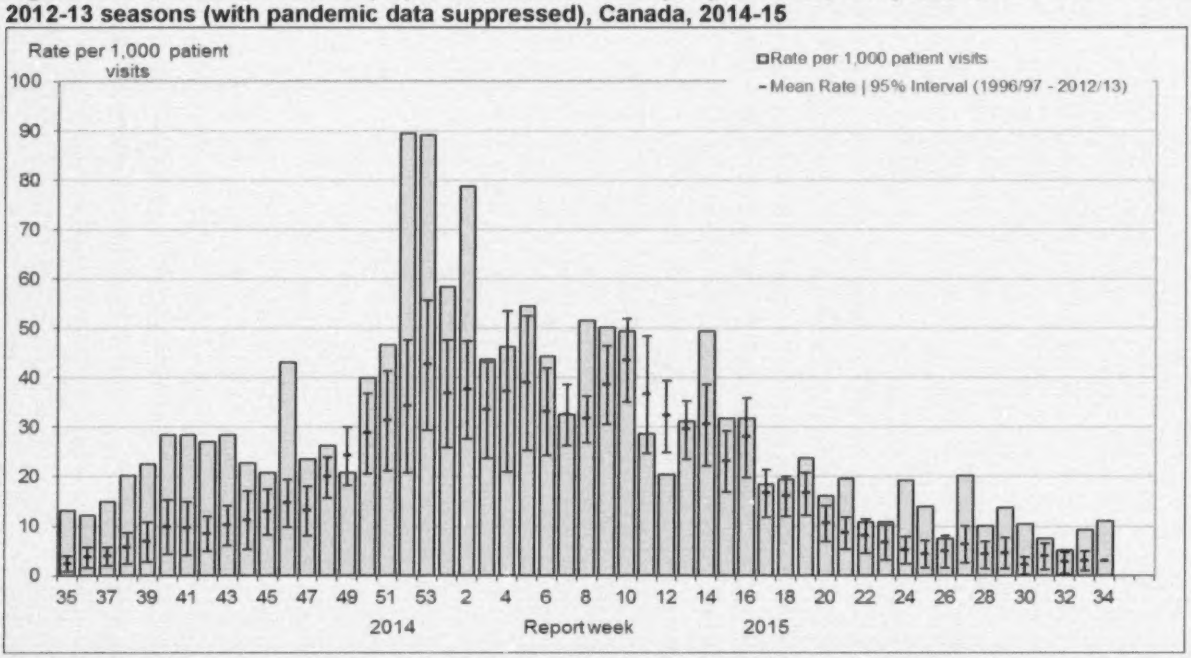
Figure 4. Influenza strain characterizations, Canada, 2014-15, N = 1,171

The NML receives a proportion of the number of influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition (HAI) testing compared to the reference influenza strains recommended by WHO.

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased from 5.1 consultations per 1,000 in week 32 to 9.2 per 1,000 in week 33 and 10.9 per 1,000 in week 34 (Figure 5). The rates for week 33 to 34 have been slightly above the expected range for this time of year.

Figure 5. Influenza-like-illness (ILI) consultation rates by report week, compared to the 1996-97 through to 2012-13 seasons (with pandemic data suppressed), Canada, 2014-15

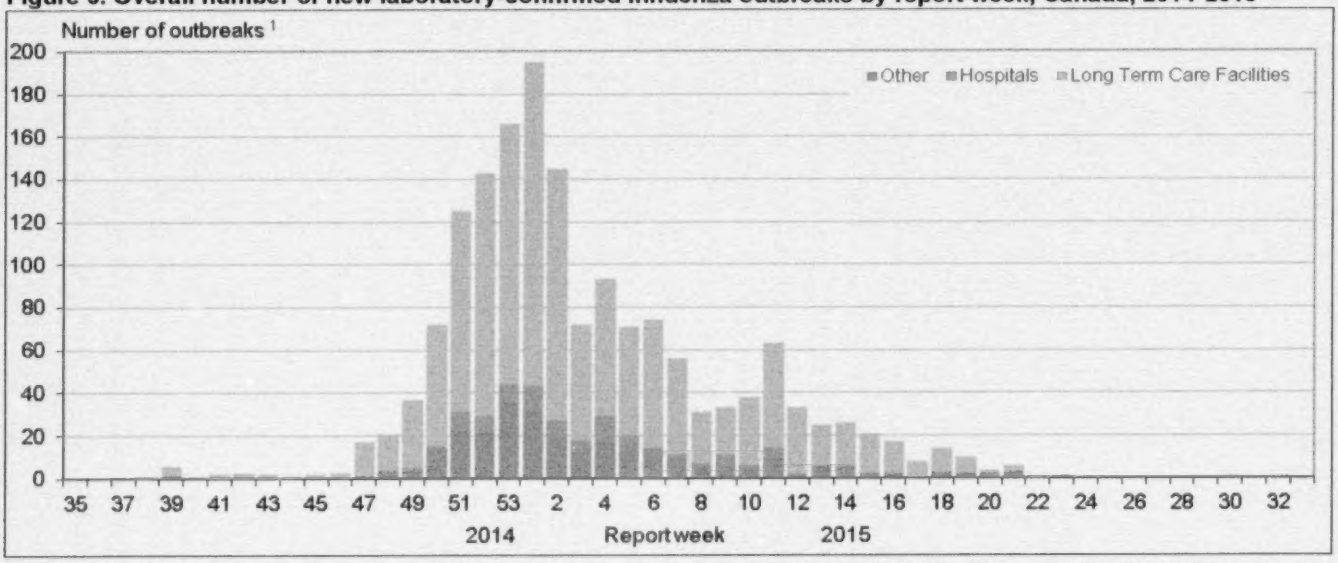


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, and SK, data is compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 34, no outbreaks of influenza were reported (Figure 6). To date this season, 1,281 outbreaks in LTCFs have been reported and the majority of those with known subtypes were attributable to A(H3N2). There have been a higher number of reported influenza outbreaks to date this season compared to the same period in previous seasons.

Figure 6. Overall number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2014-2015

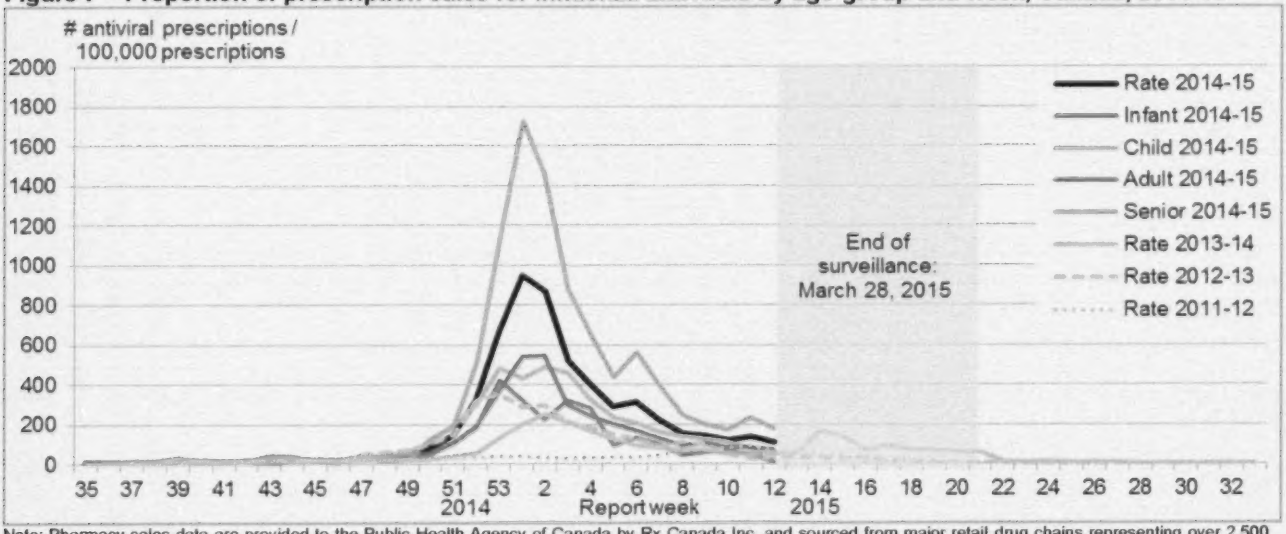


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Pharmacy Surveillance

Pharmacy surveillance for sales of influenza antivirals has ended for the 2014-2015 influenza season (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2014-15



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 2,500 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group. Age-groups: Infant: 0-2y, Child: 2-18y; Adult: 19-64y, Senior: ≥65y

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 33 and 34, no laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. No ICU admissions were reported.

To date this season, 714 hospitalizations have been reported by the IMPACT network, 511 (72%) of which were cases of influenza A. Among cases for which the influenza A subtype was reported, 98% (164/167) were A(H3N2) (Table 4). To date, 104 cases were admitted to the ICU, of which 58 (56%) were 2 to 9 years of age (Figure 9a). A total of 68 ICU cases reported to have at least one underlying condition or comorbidity. Five deaths have been reported.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (CIRN)

Surveillance has ended for the 2014-2015 influenza season.

This season, 2,228 cases have been reported; 1,912 (86%) with influenza A. The majority of cases (81%) were among adults ≥65 years of age (Table 5). One hundred and seventy two ICU admissions have been reported and 128 cases were adults ≥65 years of age. Among the 172 ICU admissions, 27 were due to influenza B (12 in adults 45 to 64 years of age and 15 in adults over the age of 65). A total of 123 ICU cases (72%) reported to have at least one underlying condition or comorbidity. Of the 123 ICU cases with known immunization status, 40 (33%) reported not having been vaccinated this season. One hundred and thirty-five deaths have been reported, 124 (92%) of the deaths were adults >65 years of age (Figure 9B).

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 4 – Cumulative numbers of paediatric hospitalizations with influenza reported by the IMPACT network, Canada, 2014-15

Age groups	Cumulative (24 Aug. 2014 to 29 Aug. 2015)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m	84	0	19	65	16	100 (14.0%)
6-23m	115	2	37	76	44	159 (22.3%)
2-4y	122	1	39	82	52	174 (24.4%)
5-9y	129	0	44	85	55	184 (25.8%)
10-16y	61	0	25	36	36	97 (13.6%)
Total	511	3	164	344	203	714
% [1]	71.6%	0.6%	32.1%	67.3%	28.4%	100.0%

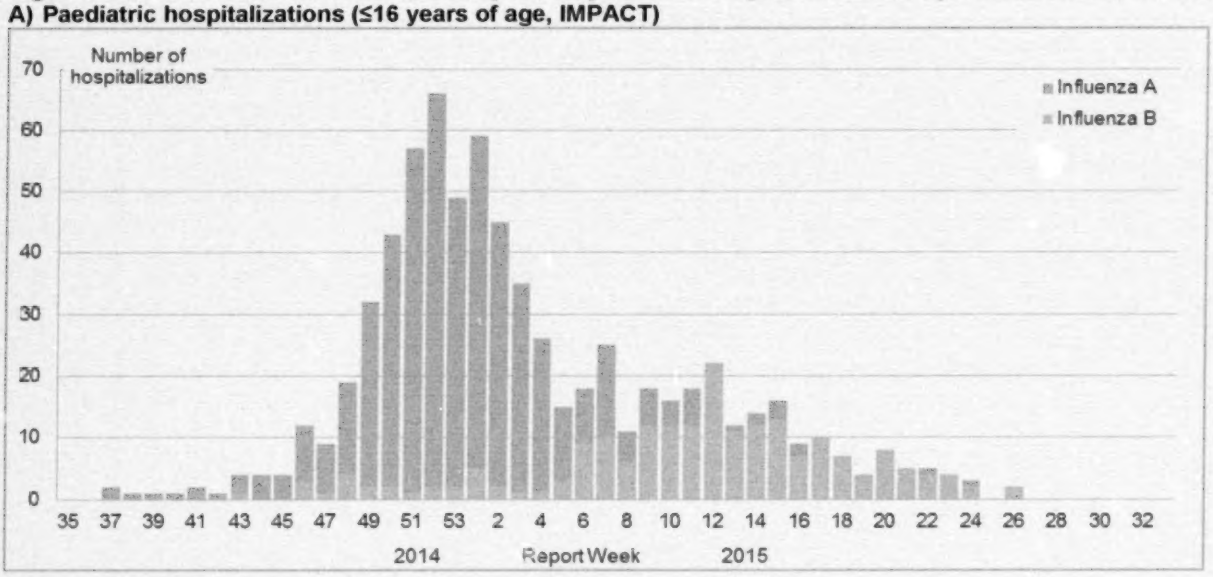
Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2014-15

Age groups (years)	Cumulative (15 Nov. 2014 to 2 May 2015)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)	Total	# (%)
16-20	3	0	1	2	1	4 (0.2%)
20-44	106	1	56	49	16	122 (5%)
45-64	217	3	99	115	76	293 (13%)
65+	1586	4	760	822	223	1809 (81%)
Total	1912	8	916	988	316	2228
%	86%	0.4%	48%	52%	14%	100%

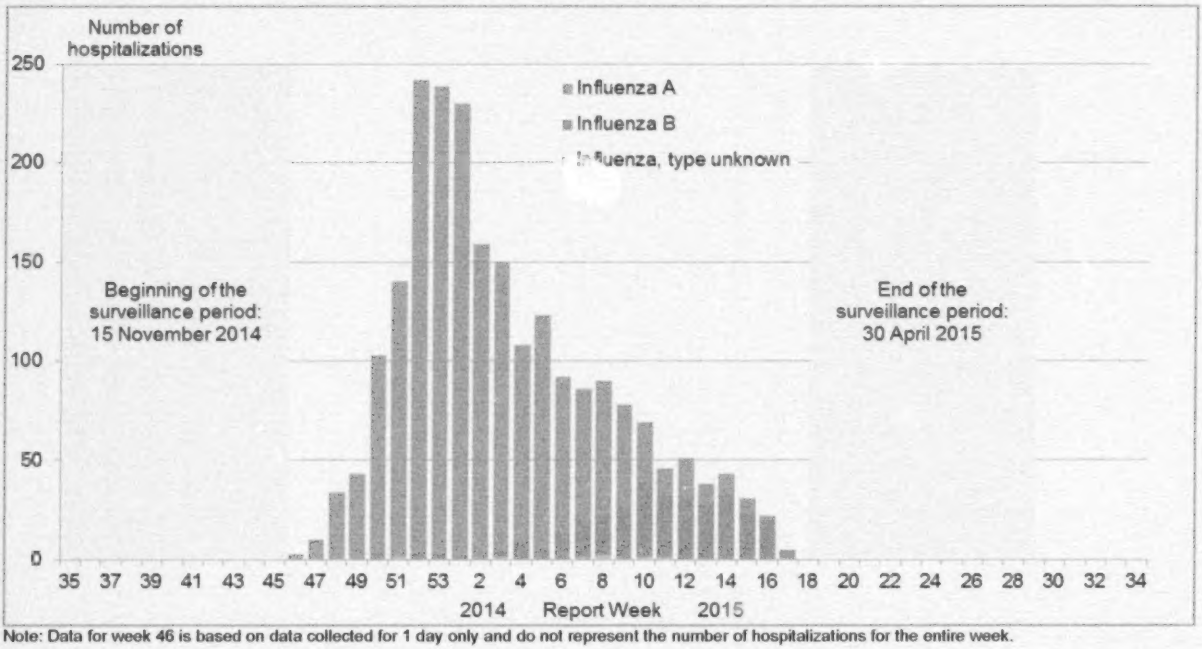
[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections. UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Figure 8 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2014-15

A) Paediatric hospitalizations (≤16 years of age, IMPACT)



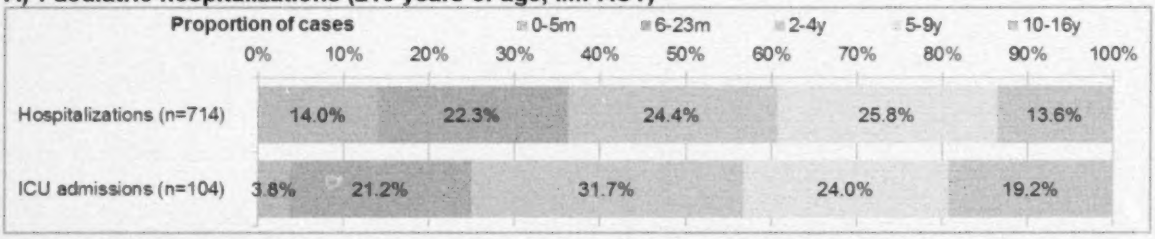
B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



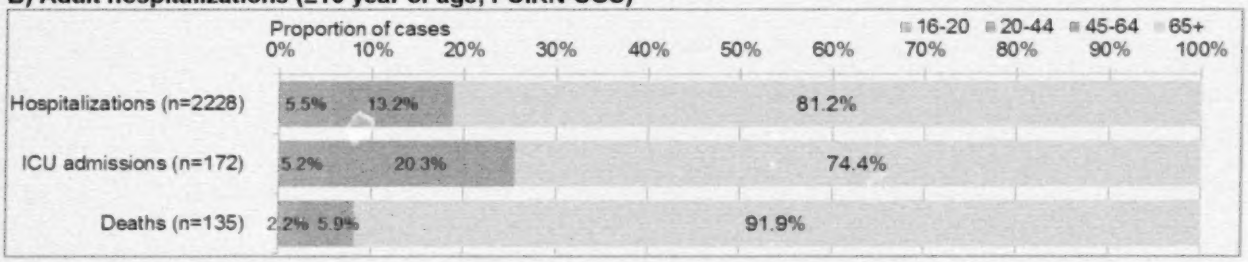
Note: Data for week 46 is based on data collected for 1 day only and do not represent the number of hospitalizations for the entire week.

Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2014-15

A) Paediatric hospitalizations (≤16 years of age, IMPACT)



B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



Provincial/Territorial Influenza Hospitalizations and Deaths

In week 34, 13 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. Of the 13 hospitalizations, eight (62%) were due to influenza A and nine (69%) were in patients ≥65 years of age.

Since the start of the 2014-15 season, 8,021 hospitalizations have been reported; 6,850 (85%) with influenza A. Among cases for which the subtype of influenza A was reported, 99.2% were A(H3N2). The majority of cases (70%) were ≥65 years of age (Table 6). A total of 397 ICU admissions have been reported to date: 52% (n=205) were in adults ≥65 years of age and 74% were due to influenza A. A total of 606 deaths have been reported since the start of the season: three children <5 years of age, five children 5-19 years, 47 adults 20-64 years, and 550 adults ≥65 years of age. Influenza A has been reported in 91% of deaths. Adults 65 years of age or older represent 91% of all deaths reported this season. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases

* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and PCIRN networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from Ontario that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2014-15

Age groups (years)	Cumulative (24 Aug. 2014 to 29 Aug. 2015)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4	443	7	154	282	101	544 (7%)
5-19	287	2	137	148	120	407 (5%)
20-44	407	4	247	156	140	547 (7%)
45-64	656	11	286	359	168	824 (10%)
65+	5002	5	2398	2599	618	5620 (70%)
Unknown	55	0	52	3	24	79 (1%)
Total	6850	29	3274	3547	1171	8021
Percentage[1]	85.4%	0.4%	47.8%	51.8%	14.6%	100.0%

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2009-10 to 2014-15 on the Public Health Agency of Canada website.

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): There have been no reported cases of human infection with avian influenza A(H7N9) since July 18, 2015. Globally to September 2, 2015, the WHO reported a total of 678 laboratory-confirmed human cases with avian influenza A(H7N9) virus, including 275 deaths. Documents related to the public health risk of influenza A(H7N9), as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Since the last FluWatch report, a number of confirmed cases of MERS-CoV continue to be reported in Saudi Arabia. Most of these cases have been associated with a hospital outbreak in the Riyadh Region. Jordan has also reported a travel-linked case of MERS-CoV from Saudi Arabia. Additional cases have since been reported in Jordan and are linked to a MERS-CoV outbreak currently occurring in a hospital in Amman city.

There have been no new cases reported in South Korea since July 4, 2015.

Globally, from September 2012 to September 2, 2015, the WHO has reported a total of 1,478 laboratory-confirmed cases of infection with MERS-CoV, including 516 deaths.

Documents related to the public health risk of MERS-CoV, as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

International Influenza Reports

World Health Organization influenza update
World Health Organization FluNet
WHO Influenza at the human-animal interface
Centers for Disease Control and Prevention seasonal influenza report
European Centre for Disease Prevention and Control - epidemiological data
South Africa Influenza surveillance report
New Zealand Public Health Surveillance
Australia Influenza Report
Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2014-2015 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.